IN THE SPECIFICATION:

Starting at page 31, line 20, please amend the specification as follows:

Fig. 11 is a schematic diagram of a semiconductor chip 200 and optical train 203 used in a second preferred embodiment. Although multiple chips can be used, this embodiment will be described in the context of a single chip 200 comprising an array of parallel waveguides 206, where the array comprises a plurality (e.g., 2 to 10) of parallel waveguides 206A, 206B, ~~206C,~~ 206I, 206K, etc. The gain profile (i.e., peak wavelength and shape) of each waveguide 206A, 206B, ~~206C,~~ 206I, 206K, etc. is chosen so as to provide the ASE output in a particular wavelength range (e.g., 3-30 nm).

The gain profiles can be defined within each waveguide 206A, 206B, ~~206C,~~ 206I, 206K, etc. by employing such techniques as epitaxial regrowth, quantum well intermixing or other techniques known in the art. The spectral width and intensity of the ASE emitted from each waveguide 206A, 206B, ~~206C,~~ 206I, 206K, etc. can be tailored through the design of the active region, the length of the waveguide, and active adjustment of the current injected into each waveguide. The quantum well block of each waveguide is designed to provide a region of high gain with, for example, 3-10 quantum wells, along the first 0.3 μm to 1 mm length of the waveguide. The remainder of the waveguide is optimized for low loss rather than high gain so as to amplify the ASE seed light and generate power in excess of 200 mW. To achieve low loss, the number of quantum wells is preferably reduced to the range of, for example, 1 to 5, and the doping in

the waveguide cladding can be reduced. A high reflectance mirror 209 is provided at one end of the waveguide, and angled waveguides 212A, 212B, ~~212C,~~ 212I, 212K, etc. used at the output, followed by a facet antireflection coating 215. This combination is used to eliminate feedback into the power booster and prevent distortion of the broadband spectral profile from Fabry-Perot interference.

The waveguide design of this second embodiment differs from the first embodiment (Fig. 10) discussed above in that each waveguide 206A, 206B, ~~206C,~~ 206I, 206K, etc. only needs to produce power in a narrower spectral range (e.g., 3-30 nm). The power and spectral width of each waveguide 206A, 206B, ~~206C,~~ 206I, 206K, etc. are then multiplexed using the optical train 203 contained within the hermetically sealed package.

The optical train 203 comprises a polarization multiplexer 218 for each pair of waveguides 206A, 206B, ~~206C,~~ 206I, 206K, etc., followed by a wavelength multiplexer port 221 for each pair of multiplexers 218. Fig. 11 illustrates this multiplexing principle for 4 waveguides using two polarization multiplexers 218 and a two-port wavelength multiplexer 221.